

Hospitalizations Involving Mental and Substance Use Disorders Among Adults, 2012

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Hospitalizations Involving Mental and Substance Use Disorders Among Adults, 2012

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Introduction

Mental and substance use disorders (M/SUDs) are major contributors to the global burden of disease, involving substantial social and economic costs.¹ In the United States, an estimated 51.2 million adults aged 18 years or older (22.5 percent of adults) have experienced one or more M/SUDs in the past 12 months.² Further, an estimated 8.4 million U.S. adults suffer from co-occurring M/SUDs—that is, they are affected by mental disorders (MDs) such as clinical depression or panic disorder, as well as by a substance use disorder (SUD) such as alcohol abuse or illicit drug dependence.³ Although many M/SUDs can be treated successfully in ambulatory care settings, inpatient treatment continues to be a key component of M/SUD care.

Hospital care for patients with M/SUDs in the United States has changed tremendously over the last several decades in response to a number of factors, including the passage of the Social Security Act of 1965 that established the Medicare and Medicaid programs, progress toward achieving parity in private insurance coverage of M/SUDs, competition within an increasingly specialized M/SUD workforce, and innovations in services and treatment. Since the mid-1960s, M/SUD care has moved away from a system characterized by treatment in state-owned facilities to one driven by market forces. Between 1971 and 2001, the share of spending on specialty M/SUD services fell by nearly 70 percent for state mental hospitals, while increasing by 65 percent for general hospitals and 366 percent for private psychiatric hospitals.⁴

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents data from the National Inpatient Sample (NIS) on adult hospitalizations involving M/SUDs in 2012. Patient characteristics of inpatient stays involving M/SUD diagnoses are discussed and compared with all other types of stays. Separate estimates are provided for stays involving MD diagnoses without SUDs (*MD*

Highlights

- In 2012, 8.6 million inpatient stays involved at least one mental disorder (MD) or substance use disorder (SUD) diagnosis, accounting for 32.3 percent of inpatient stays.
- Nearly 1.8 million inpatient stays were primarily for M/SUDs (6.7 percent of all stays).
- Mood disorders was the most common primary MD diagnosis (741,950 stays), and alcohol-related disorders was the most common SUD diagnosis (335,790 stays).
- Compared with non-M/SUD stays, on average M/SUD stays were longer (6.6 days vs. 4.8 days for non-M/SUD stays) but had lower total costs (\$6,300 vs. \$12,600). Longer stays for M/SUD diagnoses were attributable primarily to stays for MD diagnoses (8.3 days).
- Among stays with a primary MD or SUD diagnosis, 13.9 percent lacked insurance—more than two times greater than among stays without M/SUD diagnoses (6.0 percent).
- Medicare was the most

alone), SUD diagnoses without MDs (*SUD alone*), and co-occurring diagnoses (MD and SUD together). Separate estimates are provided for all-listed and primary diagnoses. In this Brief, MD or SUD diagnoses are designated as *primary* if a relevant ICD-9-CM code appeared on the patient's record as either the first-listed diagnosis or any all-listed external cause of injury or poisoning. For the most common primary diagnoses, admission through the emergency department and select patient characteristics are presented. The MD and SUD diagnoses exclude dementia and intellectual disabilities. Neonatal and maternal hospital stays were not included in this analysis. Differences between estimates described in the text are statistically significant at the .01 level or better.

Findings

Characteristics of inpatient stays involving all-listed and primary M/SUD diagnoses, 2012

Table 1 presents the number and percentage of nonmaternal/nonneonatal inpatient stays involving all-listed and primary MD diagnoses alone (i.e., without SUD diagnoses), SUD diagnoses alone (i.e., without MH diagnoses), co-occurring M/SUD diagnoses, and all other inpatient stays.

common payer for stays involving MD diagnoses only (37.4 percent). Medicaid was the most common payer for SUD diagnoses only (29.0 percent). Taken together, government payers covered 56.0 percent of all inpatient stays with a primary MD or SUD, including those with co-occurring M/SUDs.

Table 1. Number and percentage of adult inpatient stays with all-listed and primary mental and substance use disorder diagnoses, 2012

Type of stay	Type of inpatient stay		Type of M/SUD-related inpatient stay		
	M/SUD diagnosis	No M/SUD diagnoses	MD alone	SUD alone	Co-occurring M/SUD
All-listed M/SUD diagnosis (primary or secondary)					
Number of IP stays	8,594,000	18,049,700	5,652,600	1,457,900	1,483,600
Percentage of all IP stays	32.3	67.7	21.2	5.5	5.6
Percentage of all M/SUD stays	-	-	65.8	17.0	17.3
Primary M/SUD diagnosis					
Number of IP stays	1,777,300	24,872,500	695,700	266,800	808,800
Percentage of all IP stays	6.7	93.3	2.6	1.0	3.0
Percentage of all M/SUD stays	20.7	-	8.1	3.1	9.4
Percentage of primary M/SUD diagnosis stays	-	-	39.3	15.1	45.7

Abbreviations: IP, inpatient; MD, mental disorder; SUD, substance use disorder; M/SUD, mental and substance use disorder

Notes: *Primary* is defined as first-listed diagnosis or all-listed external cause of injury or poisoning. Dashes indicate that data are not applicable. Excludes maternal stays.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2012

- **One-third of all nonmaternal/nonneonatal inpatient stays included at least one mental- or substance-use-related diagnosis as a primary or secondary diagnosis.**

Table 1 shows that 32.3 percent of inpatient stays in 2012 included at least one MD or SUD diagnosis among all diagnoses listed in patient records. Among these 8,594,000 stays, two-thirds included an MD diagnosis without a co-occurring SUD diagnosis (65.8 percent). Stays involving a SUD alone (without a co-occurring MD diagnosis) and stays involving co-occurring M/SUD diagnoses each accounted for approximately 17 percent of all stays with an MD or SUD diagnosis.

- **Among inpatient stays with a primary mental or substance use disorder diagnosis, stays involving co-occurring conditions were more common than those involving a mental or substance use disorder diagnosis alone.**

In 2012, 808,800 inpatient stays involved co-occurring M/SUD conditions with either a mental or a substance use disorder as the primary diagnosis. This was approximately 16 percent higher than the number of stays with a primary MD diagnosis alone (695,700) and 200 percent higher than the number of stays with a primary SUD diagnosis alone (266,800).

Characteristics of stays with a primary M/SUD diagnosis, 2012

Table 2 shows patient characteristics of nonmaternal/nonneonatal stays involving any primary MD or SUD diagnosis in 2012, including number of stays, average costs, average lengths of stay, and aggregate costs.

Table 2. Characteristics of adult inpatient stays with a primary mental or substance use disorder diagnosis, 2012					
Characteristic	Type of inpatient stay		Type of M/SUD-related inpatient stay		
	Primary M/SUD diagnosis	No primary M/SUD diagnoses	Primary MD alone	Primary SUD alone	Co-occurring M/SUD
Aggregate costs, billions U.S. \$	11.1	306.0	4.6	2.0	4.4
Mean cost per stay, U.S. \$	6,300	12,600	6,700	7,600	5,600
Mean LOS, days	6.6	4.8	8.3	4.5	5.9
Patient characteristics, %					
Patient sex					
Female	45.0	53.7	58.3	25.5	40.0
Male	55.0	46.3	41.7	74.5	60.0
Patient age, %					
18-44 years	51.0	16.2	48.2	40.2	57.0
45-64 years	39.5	33.4	36.7	49.5	38.7
65+ years	9.5	50.4	15.1	10.3	4.3
Primary payer, %					
Medicare	27.8	55.3	37.4	18.9	22.5
Medicaid	28.2	10.2	24.8	29.0	30.9
Private	24.2	25.1	24.9	22.8	24.0
Uninsured	13.9	6.0	7.8	23.0	16.0
Other	6.0	3.4	5.1	6.4	6.7
Abbreviations: IP, inpatient; LOS, length of stay; MD, mental disorder; SUD, substance use disorder; M/SUD, mental and substance use disorder					
Note: <i>Primary</i> is defined as first-listed diagnosis or all-listed external cause of injury or poisoning. Excludes maternal stays.					
Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2012					

- **On average, mental and substance use disorder diagnoses involved longer stays but lower average costs compared with all other types of inpatient stays.**

Average length of stay was more than 38 percent higher for all M/SUD stays than for all other stays (6.6 vs. 4.8 days); however, average costs for M/SUD stays were 50 percent lower than for all other stays (\$6,300 vs. \$12,600).

Average length of stay for hospitalizations involving mental disorder diagnoses alone was approximately 80 percent higher than SUD-alone stays (8.3 vs. 4.5 days) and 40 percent higher than stays with co-occurring diagnoses (8.3 vs. 5.9 days).

- **Patients with mental or substance use disorder diagnoses were twice as likely to be uninsured as patients without M/SUD diagnoses.**

Among inpatient stays with a primary mental or substance use disorder diagnosis, 13.9 percent were uninsured—more than two times greater than among all other types of stays (6.0 percent).

About 23 percent of stays for SUDs alone were not covered by health insurance—nearly three times greater than stays for MD diagnoses alone (7.8 percent).

Medicare was the most common payer for stays involving MD diagnoses alone (37.4 percent), and Medicaid was the most common payer for stays involving co-occurring M/SUD diagnoses (30.9 percent) and SUDs alone (29.0 percent).

- **Female patients accounted for the majority of inpatient stays with a primary MD diagnosis only, whereas males accounted for the majority of stays with SUD as the primary diagnosis and stays with co-occurring M/SUD diagnoses.**

Female patients accounted for 58.3 percent of inpatient stays with a primary MD diagnosis without a co-occurring SUD diagnosis, but only 25.5 percent of stays with a primary SUD diagnosis only and 40.0 percent of stays with co-occurring M/SUD diagnoses

The most common primary mental and substance use disorder diagnoses, 2012

Table 3 ranks the five most common primary MD diagnoses and the five most common primary SUD diagnoses, along with number of stays and percentage of stays admitted from emergency departments for each diagnosis. The estimated 1,731,085 stays for these 10 diagnoses accounted for 97.7 percent of all stays with a primary M/SUD diagnosis (1,777,300).

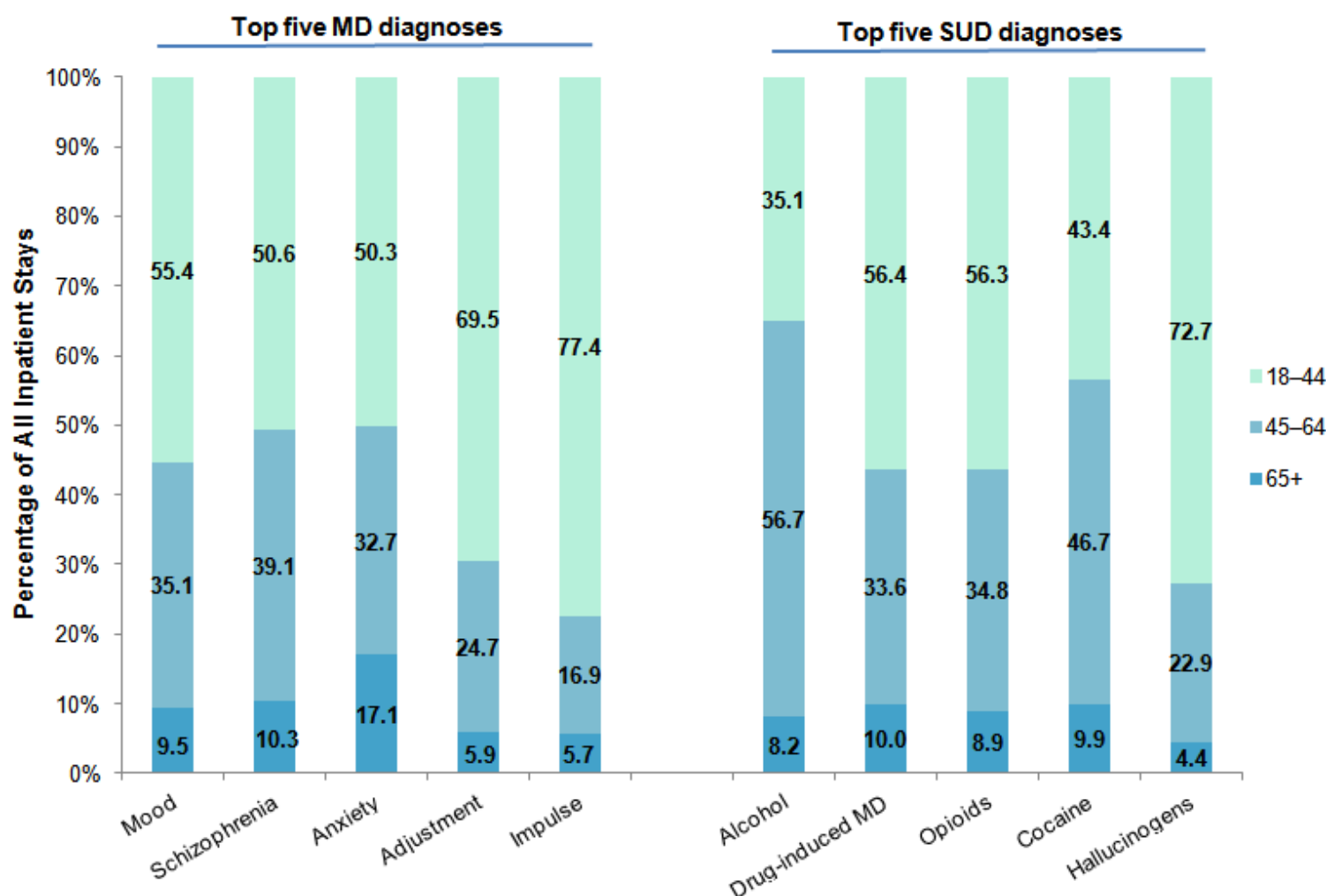
Table 3. Most common mental and substance use disorder diagnoses among adult inpatient stays with a primary mental or substance use disorder diagnosis, 2012			
Diagnosis	Rank	Number of stays	Admitted through ED, %
Top five mental disorder diagnoses			
Mood disorders	1	741,950	52.9
Schizophrenia and other psychotic disorders	2	375,935	57.8
Anxiety disorders	3	36,085	65.1
Adjustment disorders	4	33,250	57.7
Impulse disorders	5	5,660	58.7
Top five substance use disorder diagnoses			
Alcohol-related disorders	1	335,790	72.0
Drug-induced mental disorders, specific drug not specified	2	100,740	50.5
Opioid-related disorders	3	90,560	63.1
Cocaine-related disorders	4	7,595	47.3
Hallucinogen-related disorders	5	3,520	84.4
^a Abbreviation: ED, emergency department Note: <i>Primary</i> is defined as first-listed diagnosis or all-listed external cause of injury or poisoning. Excludes maternal stays. Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2012			

- **For each of the five most common MD diagnoses and for three of the five most common SUD diagnoses, inpatient stays for SUDs were more often admitted from hospital emergency departments.**

Among SUD-related stays, the percentage that were admitted from emergency departments was highest for hallucinogen-related disorders (84.4 percent), followed by alcohol-related disorders (72.0 percent). Among MD-related stays, anxiety disorders and impulse disorders had the highest percentage of preceding emergency department use, at 65.1 percent and 58.7 percent, respectively.

Figures 1-3 provide the distribution of inpatient stays for the top five MD and top five SUD diagnoses by patient age group (Figure 1), sex (Figure 2), and insurance type (Figure 3).

Figure 1. Most common M/SUD diagnoses among adult inpatient stays by age group, 2012



Abbreviations: MD, mental disorder; SUD, substance use disorder

Note: Based on primary diagnosis (first-listed diagnosis or all-listed external cause of injury or poisoning). Excludes maternal stays.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2012

Figure 1. Most common M/SUD diagnoses among adult inpatient stays by age group, 2012. Figure 1 is a bar chart that describes the percentage of adult inpatient stays by age group for the five top mental disorder and the five top substance use disorder diagnoses in 2012. The five top mental disorder diagnoses among adult patients in 2012 were mood, schizophrenia, anxiety, adjustment, and impulse. For inpatient stays for mood, 55.4% were for

adults aged 18-44 years, 35.1% were for adults aged 45-64 years, and 9.5% were for adults aged 65 years and older. For inpatient stays for schizophrenia, 50.6% were for adults aged 18-44 years, 39.1% were for adults aged 45-64 years, and 10.3% were for adults aged 65 years and older. For inpatient stays for anxiety, 50.3% were for adults aged 18-44 years, 32.7% were for adults aged 45-64 years, and 17.1% were for adults aged 65 years and older. For inpatient stays for adjustment, 69.5% were for adults aged 18-44 years, 24.7% were for adults aged 45-64 years, and 5.9% were for adults aged 65 years and older. For inpatient stays for impulse, 77.4% were for adults aged 18-44 years, 16.9% were for adults aged 45-64 years, and 5.7% were for adults aged 65 years and older. The five top substance use disorder diagnoses among adult patients in 2012 were alcohol, drug-induced mental disorder, opioids, cocaine, and hallucinogens. For inpatient stays for alcohol, 35.1% were for adults aged 18-44 years, 56.7% were for adults aged 45-64 years, and 8.2% were for adults aged 65 years and older. For inpatient stays for drug-induced mental disorder, 56.4% were for adults aged 18-44 years, 33.6% were for adults aged 45-64 years, and 10.0% were for adults aged 65 years and older. For inpatient stays for opioids, 56.3% were for adults aged 18-44 years, 34.8% were for adults aged 45-64 years, and 8.9% were for adults aged 65 years and older. For inpatient stays for cocaine, 43.4% were for adults aged 18-44 years, 46.7% were for adults aged 45-64 years, and 9.9% were for adults aged 65 years and older. For inpatient stays for hallucinogens, 72.7% were for adults aged 18-44 years, 22.9% were for adults aged 45-64 years, and 4.4% were for adults aged 65 years and older.

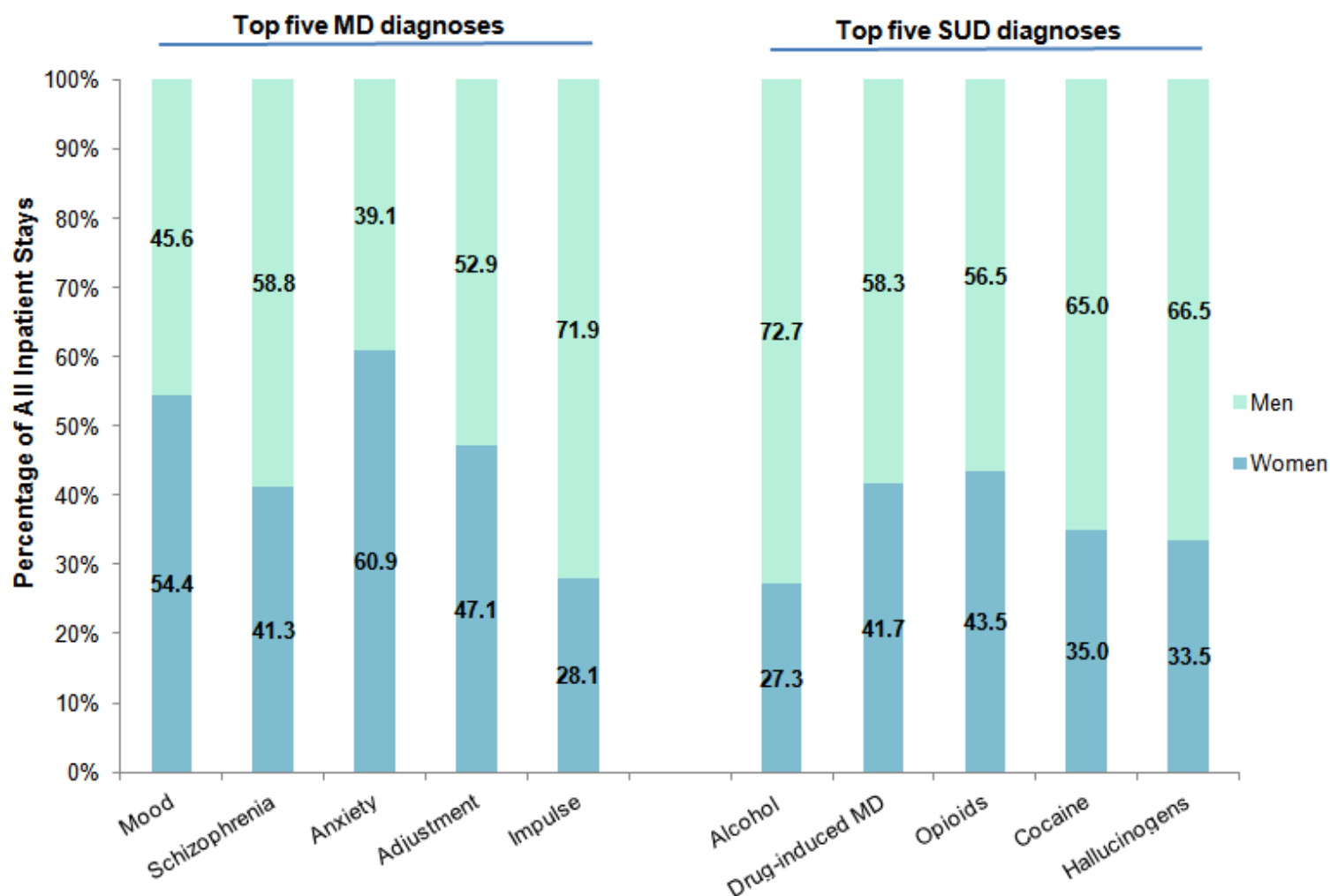
- **Patients aged 18-44 years were disproportionately represented across the most common M/SUD diagnoses.**

As shown in Figure 1, patients between the ages of 18 and 44 years accounted for the majority of stays for each of the top five MD diagnoses and for three of the top five SUD diagnoses—drug-induced mental disorders, opioid-related disorders, and hallucinogen-related disorders.

Although patients aged 45-64 years accounted for 39.5 percent of all M/SUD-related stays (Table 2), this group accounted for the majority of alcohol-related stays (56.7 percent).

Among patients aged 65 years and older, the most common MD diagnosis was anxiety disorders (17.1 percent of all stays) and the least common SUD diagnosis was hallucinogen-related disorders (4.4 percent of all stays).

Figure 2. Most common M/SUD diagnoses among adult inpatient stays by sex, 2012



Abbreviations: MD, mental disorder; SUD, substance use disorder

Note: Based on primary diagnosis (first-listed diagnosis or all-listed external cause of injury or poisoning). Excludes maternal stays.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2012

Figure 2. Most common M/SUD diagnoses among adult inpatient stays by sex, 2012. Figure 2 is a bar chart that describes the percentage of adult inpatient stays by sex for the five top mental disorder and the five top substance use disorder diagnoses in 2012. The five top mental disorder diagnoses among adult patients in 2012 were mood, schizophrenia, anxiety, adjustment, and impulse. For inpatient stays for mood, 45.6% were for men and 54.4% were for women. For inpatient stays for schizophrenia, 58.8% were for men and 41.3% were for women. For inpatient stays for anxiety, 39.1% were for men and 60.9% were for women. For inpatient stays for adjustment, 52.9% were for men and 47.1% were for women. For inpatient stays for impulse, 71.9% were for men and 28.1% were for women. The five top substance use disorder diagnoses among adult patients in 2012 were alcohol, drug-induced mental disorder, opioids, cocaine, and hallucinogens. For inpatient stays for alcohol, 72.7% were for men and 27.3% were for women. For inpatient stays for drug-induced mental disorder, 58.3% were for men and 41.7% were for women. For inpatient stays for opioids, 56.5% were for men and 43.5% were for women. For inpatient stays for cocaine, 65.0% were for men and 35.0% were for women. For inpatient stays for hallucinogens, 66.5% were for men and 33.5% were for women.

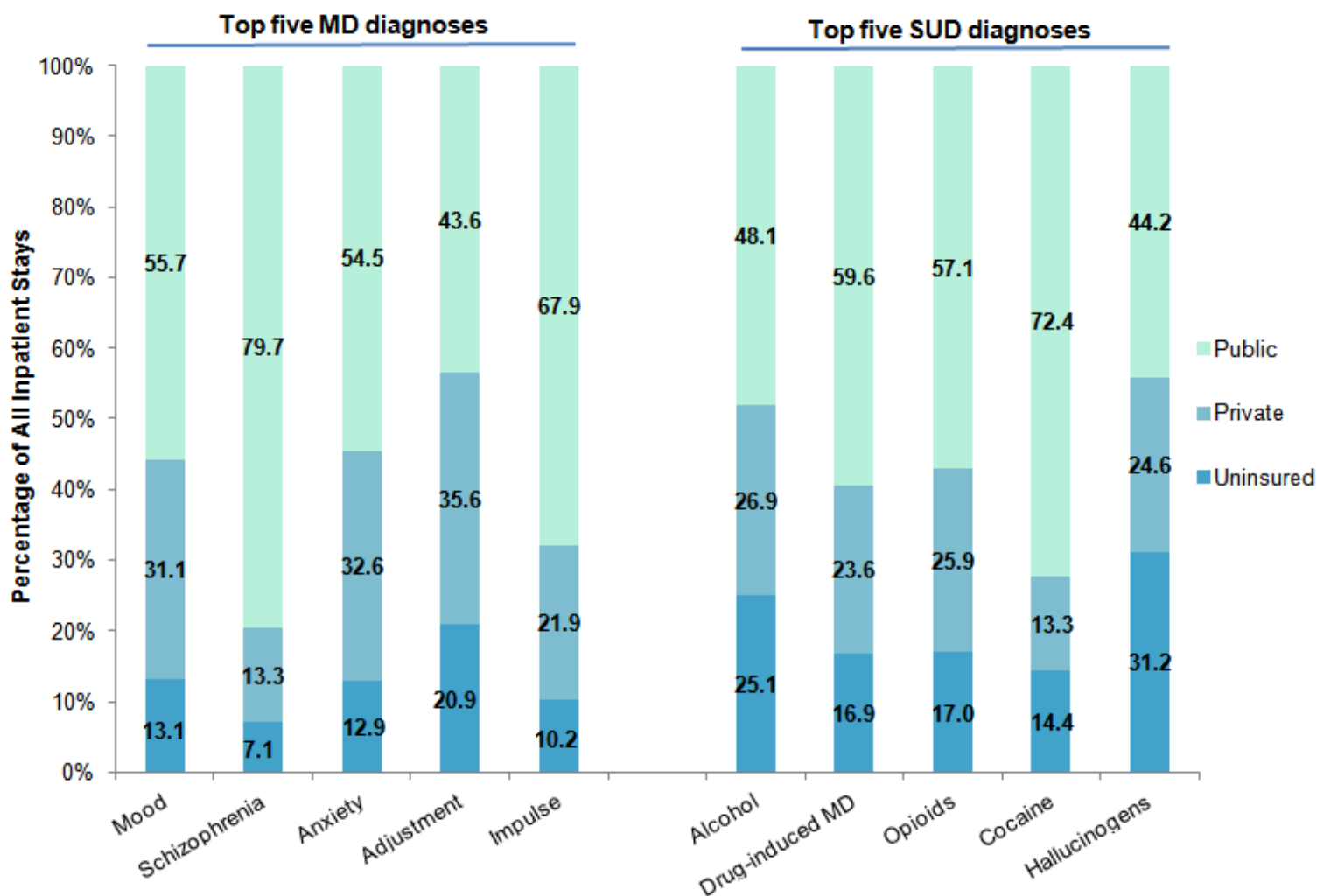
- **Males were the majority of cases for the top five SUD diagnoses and for three of the top five MD diagnoses.**

Figure 2 shows that male patients were the majority of cases for the following common M/SUD hospitalizations:

- Schizophrenia and other psychotic diagnoses (58.8 percent)
- Adjustment disorders (52.9 percent)
- Impulse disorders (71.9 percent)
- Alcohol-related disorders (72.7 percent)
- Drug-induced mental disorders (58.3 percent)
- Opioid-related disorders (56.5 percent)
- Cocaine-related disorders (65.0 percent)
- Hallucinogen-related disorders (66.5 percent)

Female patients made up the majority of hospital stays for mood disorders (54.4 percent) and anxiety disorders (60.9 percent).

Figure 3. Most common M/SUD diagnoses among adult inpatient stays by insurance type, 2012



Abbreviations: MD, mental disorder; SUD, substance use disorder

Note: Based on primary diagnosis (first-listed diagnosis or all-listed external cause of injury or poisoning). Excludes maternal stays.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2012

Figure 3. Most common M/SUD diagnoses among adult inpatient stays by insurance type, 2012. Figure 3 is a bar chart that describes the percentage of adult inpatient stays by insurance type for the five top mental disorder and the five top substance use disorder diagnoses in 2012. The five top mental disorder diagnoses among adult patients in 2012 were mood, schizophrenia, anxiety, adjustment, and impulse. For inpatient stays for mood, 55.7% were publicly insured, 31.1% were privately insured, and 13.1% were uninsured. For inpatient stays for schizophrenia, 79.7% were publicly insured, 13.3% were privately insured, and 7.1% were uninsured. For inpatient stays for anxiety, 54.5% were publicly insured, 32.6% were privately insured, and 12.9% were uninsured. For inpatient stays for adjustment, 43.6% were publicly insured, 35.6% were privately insured, and 20.9% were uninsured. For inpatient stays for impulse, 67.9% were publicly insured, 21.9% were privately insured, and 10.2% were uninsured. The five top substance use disorder diagnoses among adult patients in 2012 were alcohol, drug-induced mental disorder, opioids, cocaine, and hallucinogens. For inpatient stays for alcohol, 48.1% were publicly insured, 26.9% were privately insured, and 25.1% were uninsured. For inpatient stays for drug-induced mental disorder, 59.6% were publicly insured, 23.6% were privately insured, and 16.9% were uninsured. For inpatient stays for opioids, 57.1% were publicly insured, 25.9% were privately insured, and 17.0% were uninsured. For inpatient stays for cocaine, 72.4% were publicly insured, 13.3% were privately insured, and 14.4% were uninsured. For inpatient stays for hallucinogens, 44.2% were publicly insured, 24.6% were privately insured, and 31.2% were uninsured.

- **Public programs (i.e., Medicare and Medicaid) were the most common sources of payment for four of the five most common MD diagnoses and three of the five most common SUD diagnoses.**

Taken together, government payers—Medicare and Medicaid—paid for 56.0 percent of all inpatient stays for M/SUD diagnoses (Table 2). Among the most common MD and SUD diagnoses, these public programs paid for 79.7 percent of stays for schizophrenia and other psychotic disorders, 72.4 percent of stays for cocaine-related disorders, and 67.9 percent of stays for impulse disorders (Figure 3). By contrast, private insurance coverage was lowest for schizophrenia and for cocaine-related disorders, at approximately 13.0 percent.

Inpatient stays for alcohol-related disorders were nearly twice as likely to be uninsured (25.1 percent) as were M/SUD stays as a whole (13.9 percent; Table 2). Of the most common MD and SUD diagnoses, stays related to hallucinogen-related disorders were the most likely to be uninsured, at 31.2 percent.

Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) 2012 National Inpatient Sample (NIS).

Many hypothesis tests were conducted for this Statistical Brief. Thus, to decrease the number of false-positive results, we reduced the significance level to .01 for individual tests.

Definitions

Diagnoses, ICD-9-CM, Clinical Classifications Software (CCS)

The *first-listed diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital. *Secondary diagnoses* are concomitant conditions that coexist at the time of admission or develop during the stay. *All-listed diagnoses* include the principal diagnosis plus these additional secondary conditions. In this Brief, a mental disorder or substance use disorder diagnosis is designated *primary* if a relevant ICD-9-CM code appeared either as the first-listed diagnosis or as any all-listed external cause for injury or poisoning ("E code") on the patient's record.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to diagnoses. There are approximately 14,000 ICD-9-CM diagnosis codes. CCS categorizes ICD-9-CM

diagnosis codes into a manageable number of clinically meaningful categories.⁵ This clinical grouper makes it easier to quickly understand patterns of diagnoses. CCS categories identified as Other typically are not reported; these categories include miscellaneous, otherwise unclassifiable diagnoses that may be difficult to interpret as a group.

Case definition for substance use disorder conditions

The ICD-9-CM codes defining substance use disorders are listed in Table 4.

Table 4. ICD-9-CM diagnosis codes defining substance use disorders

ICD-9-CM diagnosis codes	Description
Alcohol	
291.0	Alcohol withdrawal delirium
291.1	Alcohol-induced persisting amnestic disorder
291.2	Alcohol-induced persisting dementia
291.3	Alcohol-induced psychotic disorder with hallucinations
291.4	Idiosyncratic alcohol intoxication
291.5	Alcohol-induced psychotic disorder with delusions
291.8	Other specified alcohol-induced mental disorders
291.81	Alcohol withdrawal
291.82	Alcohol-induced sleep disorders
291.89	Other alcohol-induced disorders
291.9	Unspecified alcohol-induced mental disorders
303.00-303.03	Acute alcohol intoxication
303.90-303.93	Other and unspecified alcohol dependence
305.00-305.03	Alcohol abuse
357.5	Alcoholic polyneuropathy
425.5	Alcoholic cardiomyopathy
535.30, 535.31	Alcoholic gastritis
571.0	Alcoholic fatty liver
571.1	Acute alcoholic hepatitis
571.2	Alcoholic Cirrhosis of Liver
571.3	Alcoholic liver damage, unspecified
E860.0	Alcoholic beverages poisoning
Amphetamines	
304.40-304.43	Amphetamines dependence
305.70-305.73	Nondependent amphetamine abuse
Cannabis	
304.30-304.33	Cannabis dependence
305.20-305.23	Nondependent cannabis abuse
Cocaine	
304.20-304.23	Cocaine dependence
305.60-305.63	Nondependent cocaine abuse
968.5	Poisoning by cocaine
E938.5	Cocaine, adverse effects
Drug-induced mental disorders	
292.0	Drug withdrawal

292.11	Drug-induced psychotic disorder with delusions
292.12	Drug-induced psychotic disorder with hallucinations
292.2	Pathological drug intoxication
292.81	Drug-induced delirium
292.82	Drug-induced persistent dementia
292.83	Drug-induced persistent amnestic disorder
292.84	Drug-induced mood disorder
292.85	Drug-induced sleep disorders
292.89	Other drug-induced mental disorder
292.9	Unspecified drug-induced mental disorder
Hallucinogens	
304.50-304.53	Hallucinogen dependence
305.30-305.33	Nondependent hallucinogen abuse
969.6	Poisoning by hallucinogens (psychodysleptics)
E854.1	Accidental poisoning by hallucinogens (psychodysleptics)
E939.6	Hallucinogens, adverse effects
Opioids	
304.00-304.03	Opioid type dependence
304.70-304.73	Combinations of opioids with any other
305.50-305.53	Nondependent opioid abuse
965.00	Poisoning by opium
965.01	Poisoning by heroin
965.02	Poisoning by methadone
965.09	Poisoning by other opiates and related narcotics
E850.0	Heroin poisoning
E935.0	Heroin, adverse effects
Sedatives, hypnotics, anxiolytics, tranquilizers, barbituates	
304.10-304.13	Sedatives, hypnotics, or anxiolytic dependence
305.40-305.43	Nondependent sedative, hypnotic, or anxiolytic abuse
Other	
304.60-304.63	Other, specified drug dependence
304.80-304.83	Combinations excluding opioids
304.90-304.93	Unspecified drug dependence
305.90-305.93	Other, Mixed or Unspecified Drug Abuse
648.30-648.34	Diabetes related to drug dependence
V654.2	Counseling, substance use

Case definition for mental disorders
The CCS categories defining mental disorders are listed in Table 5.

Table 5. CCS codes defining mental disorders	
CCS code	Description
650	Adjustment disorders
651	Anxiety disorders

652	Attention-deficit, conduct, and disruptive behavior disorders
655	Disorders usually diagnosed in infancy, childhood, or adolescence
656	Impulse control disorders
657	Mood disorders
658	Personality disorders
659	Schizophrenia and other psychotic disorders
662	Suicide and intentional self-inflicted injury
663	Screening and history of mental health and substance abuse codes
670	Miscellaneous disorders

Although dementia (CCS=653) and intellectual disability/developmental disorders (CCS=654) are listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, these diagnoses, which are frequently characterized by the development of multiple cognitive impairments related to medical conditions, frequently require more medical than psychiatric treatment and thus are excluded from the analysis.

Types of hospitals included in the HCUP National Inpatient Sample

The National Inpatient Sample (NIS) is based on data from community hospitals, which are defined as short-term, non-Federal, general, and other hospitals, excluding hospital units of other institutions (e.g., prisons). The NIS includes obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Excluded are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. Beginning in 2012, long-term acute care hospitals are also excluded. However, if a patient received long-term care, rehabilitation, or treatment for psychiatric or chemical dependency conditions in a community hospital, the discharge record for that stay will be included in the NIS.

Unit of analysis

The unit of analysis is the hospital discharge (i.e., the hospital stay), not a person or patient. This means that a person who is admitted to the hospital multiple times in 1 year will be counted each time as a separate discharge from the hospital.

Costs and charges

Total hospital charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from the Centers for Medicare & Medicaid Services (CMS).⁶ *Costs* reflect the actual expenses incurred in the production of hospital services, such as wages, supplies, and utility costs; *charges* represent the amount a hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used. Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional (physician) fees. For the purposes of this Statistical Brief, costs are reported to the nearest hundred.

How HCUP estimates of costs differ from National Health Expenditure Accounts

There are a number of differences between the costs cited in this Statistical Brief and spending as measured in the National Health Expenditure Accounts (NHEA), which are produced annually by the Centers for Medicare & Medicaid Services (CMS).⁷ The largest source of difference comes from the HCUP coverage of inpatient treatment only in contrast to the NHEA inclusion of outpatient costs associated with emergency departments and other hospital-based outpatient clinics and departments as well. The outpatient portion of hospitals' activities has been growing steadily and may exceed half of all hospital revenue in recent years. On the basis of the American Hospital Association Annual Survey, 2012 outpatient gross revenues (or charges) were about 44 percent of total hospital gross revenues.⁸

Smaller sources of differences come from the inclusion in the NHEA of hospitals that are excluded from HCUP. These include Federal hospitals (Department of Defense, Veterans Administration, Indian Health Services, and Department of Justice [prison] hospitals) as well as psychiatric, substance abuse, and long-term care hospitals. A third source of difference lies in the HCUP reliance on billed charges from hospitals to payers, adjusted to provide estimates of costs using hospital-wide cost-to-charge ratios, in contrast to the NHEA measurement of spending or revenue. HCUP costs estimate the amount of money required to produce hospital services, including expenses for wages, salaries, and benefits paid to staff as well as utilities, maintenance, and other similar expenses required to run a hospital. NHEA spending or revenue measures the amount of income received by the hospital for treatment and other services provided, including payments by insurers, patients, or government programs. The difference between

revenues and costs include profit for for-profit hospitals or surpluses for nonprofit hospitals.

Emergency department admission

Admission source indicates where the patient was located prior to admission to the hospital. Emergency department admission indicates that the patient was admitted to the hospital through the emergency department.

Payer

Payer is the expected primary payer for the hospital stay. To make coding uniform across all HCUP data sources, payer combines detailed categories into general groups:

- Medicare: includes patients covered by fee-for-service and managed care Medicare
- Medicaid: includes patients covered by fee-for-service and managed care Medicaid
- Private Insurance: includes Blue Cross, commercial carriers, and private health maintenance organizations (HMOs) and preferred provider organizations (PPOs)
- Uninsured: includes an insurance status of *self-pay* and *no charge*
- Other: includes Worker's Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs.

When more than one payer is listed for a hospital discharge, the first-listed payer is used.

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, private data organizations (HCUP Partners), and the Federal government to create a national information resource of encounter-level health care data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to health care programs, and outcomes of treatments at the national, State, and local market levels.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
District of Columbia Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health and Hospitals
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Center for Health Information and Analysis
Michigan Health & Hospital Association
Minnesota Hospital Association
Mississippi Department of Health
Missouri Hospital Industry Data Institute
Montana MHA - An Association of Montana Health Care Providers
Nebraska Hospital Association
Nevada Department of Health and Human Services

New Hampshire Department of Health & Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health
North Carolina Department of Health and Human Services
North Dakota (data provided by the Minnesota Hospital Association)
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Oregon Office of Health Analytics
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina Revenue and Fiscal Affairs Office
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About Statistical Briefs

HCUP Statistical Briefs are descriptive summary reports presenting statistics on hospital inpatient and emergency department use and costs, quality of care, access to care, medical conditions, procedures, patient populations, and other topics. The reports use HCUP administrative health care data.

About the NIS

The HCUP National Inpatient Sample (NIS) is a national database of hospital inpatient stays. The NIS is nationally representative of all community hospitals (i.e., short-term, non-Federal, nonrehabilitation hospitals). The NIS includes all payers. It is drawn from a sampling frame that contains hospitals comprising more than 95 percent of all discharges in the United States. The vast size of the NIS allows the study of topics at the national and regional levels for specific subgroups of patients. In addition, NIS data are standardized across years to facilitate ease of use.

The 2012 NIS was redesigned to optimize national estimates. The redesign incorporates two critical changes:

- Revisions to the sample design—starting with 2012, the NIS is a *sample of discharge records from all HCUP-participating hospitals*, rather than a sample of hospitals from which all discharges were retained (as is the case for NIS years before 2012).
- Revisions to how hospitals are defined—the NIS now uses the *definition of hospitals and discharges supplied by the statewide data organizations* that contribute to HCUP, rather than the definitions used by the American Hospital Association (AHA) Annual Survey of Hospitals.

The new sampling strategy is expected to result in more precise estimates than those that resulted from the previous NIS design by reducing sampling error: for many estimates, confidence intervals under the new design are about half the length of confidence intervals under the previous design. The change in sample design for 2012 necessitates recomputation of prior years' NIS data to enable analysis of trends that uses the same definitions of discharges and hospitals.

For More Information

For more information about HCUP, visit <http://www.hcup-us.ahrq.gov/>.

For additional HCUP statistics, visit HCUPnet, our interactive query system, at <http://hcpunet.ahrq.gov/>.

For information on other M/SUD hospitalizations in the United States, refer to the following HCUP Statistical Briefs located at <http://www.hcup-us.ahrq.gov/reports/statbriefs/statbriefs.jsp>:

- Statistical Brief #39, Hospitalizations Related to Drug Abuse, 2005
- Statistical Brief #40, Hospitalizations Related to Depression, 2005
- Statistical Brief #62, Hospitalizations Related to Mental Health, 2006
- Statistical Brief #92, Mental Health and Substance Abuse-Related Emergency Department Visits Among Adults, 2007
- Statistical Brief #117, State Variation in Inpatient Hospitalizations for Mental Health and Substance Abuse Conditions, 2002-2008
- Statistical Brief #177, Hospital Inpatient Utilization Related to Opioid Overuse Among Adults, 1993-2012

For a detailed description of HCUP and more information on the design of the National Inpatient Sample (NIS), please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated November 2014. <https://www.hcup-us.ahrq.gov/nisoverview.jsp>. Accessed January 7, 2015.

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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at hcup@ahrq.gov or send a letter to the address below: hcup@ahrq.gov or send a letter to the address below:

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¹ Funk M. Mental Health and Development: Targeting People With Mental Health Conditions as a Vulnerable Group. Geneva, Switzerland: World Health Organization; 2010.

² Center for Behavioral Health Statistics and Quality. Past Year Mental Disorders Among Adults in the United States: Results From the 2008-2012 Mental Health Surveillance Survey. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2014.

³ Center for Behavioral Health Statistics and Quality. 2013 National Survey on Drug Use and Health: Mental Health Detailed Tables. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2014.

⁴ Frank RG, Glied SA. Better but Not Well: Mental Health Policy in the United States Since 1950. Baltimore, MD: The Johns Hopkins University Press; 2006.

⁵ Agency for Healthcare Research and Quality. HCUP Clinical Classifications Software (CCS). Healthcare Cost and Utilization Project (HCUP). Updated July 2014. Rockville, MD: Agency for Healthcare Research and Quality. Updated November 2014. <https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>. Accessed January 7, 2015.

⁶ Agency for Healthcare Research and Quality. HCUP Cost-to-Charge Ratio (CCR) Files. Healthcare Cost and Utilization Project (HCUP). 2001-2011. Rockville, MD: Agency for Healthcare Research and Quality. Updated December 2014. <https://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp>. Accessed January 7, 2015.

For additional information about the NHEA, see Centers for Medicare & Medicaid Services (CMS). National Health Expenditure Data. CMS Web site May 2014. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html?redirect=/NationalHealthExpendData/>. Accessed January 7, 2015.

⁸ American Hospital Association. TrendWatch Chartbook, 2014. Table 4.2. Distribution of Inpatient vs. Outpatient Revenues, 1992-2012. <http://www.aha.org/research/reports/tw/chartbook/2014/table4-2.pdf>. Accessed January 7, 2015.

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